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EXAMINER	
AHMED, SALMAN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/015,926	Applicant(s) KRISHNAMURTHI ET AL.	
	Examiner SALMAN AHMED	**Art Unit** 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 5-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2 and 5-53 and 56-68* is/are rejected.

7)☒ Claim(s) *54 and 55* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/10/2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claims 1-2 and 5-68 are pending.

Claims 1-2, 5-53 and 56-68 are rejected.

Claims 54 and 55 are objected to.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen et al. (US PAT 6687499), hereinafter referred to as Numminen in view of Walding (US PAT 6031845) and Dipperstein (US PAT 6185191).

In regards to claim 1 Numminen teaches *receiving a first message having included therein test settings selected from among a plurality of possible test settings* (column 7 lines 18-20 and column 11 lines 4-6, test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel. Applicability of the invention to all mobile communication systems in which a mobile station can operate on data, traffic and control channels (i.e. plurality of possible test settings)) *for one or more channels* (column 7 lines 18-20, test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel) *comprising a reverse traffic channel* (column 7 line 42 and column 8 line 67, transmission channel tested is a HSCSD-type data channel), *one or more auxiliary channels*, (column 11 lines 4-6, traffic and control channels) *or a combination thereof* (column 11 lines 4-6, The names and specifications associated with particular systems or hardware are given by way of example only and applicability of the invention extends to all mobile communication systems in which a mobile station can operate on data, traffic and control channels i.e. a combination thereof); *configuring the one or more channels based on the selected test settings in the first message* (column 7 lines 46-47 and . column 7 lines 59-61 and column 9 lines 10-11, at first the test equipment sends a comparison and statistical operation start command associated with the data channel. The mobile station activates the test loop in a certain time after it has sent the acknowledge); *receiving test packets via a forward traffic channel* (column 8 lines 4-7, once the G loop has been activated the test equipment can start sending test data); *transmitting loop back packets via the reverse traffic channel* (column 8 lines 37-

40, Complete statistics or information elements representing the reception error status in general (i.e. loop back packets) are sent uplink to the test equipment) *if indicated by the selected test settings* (column 7 lines 49-51, the close command may include an identifier on the basis of which the mobile station identifies the G loop) *wherein the loop back packets comprising data for the received test packets* (column 8 lines 37-40, Complete statistics or information elements representing the reception error status in general (i.e. loop back packets containing complete statistics or information elements representing the reception error status) are sent uplink to the test equipment), *and transmitting data via one or more auxiliary channels if indicated by the selected test settings to test the one or more auxiliary channels* (column 7 lines 18-20 and column 11 lines 4-6, test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel. Applicability of the invention to all mobile communication systems in which a mobile station can operate on data, traffic and control channels (i.e. overhead or auxiliary channels)).

Numminen does not explicitly teach signaling data is sent via auxiliary channel.

Walding in the same field of endeavor teaches the overhead channel (i.e. auxiliary channel) is provided for carrying control information (i.e. signaling packets) used to establish and maintain the downlink and uplink communication paths (column 1 lines 48-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's system/method by incorporating the steps of signaling data being sent via auxiliary channel as suggested by Walding. The motivation

is that (as suggested by Walding, column 1 lines 48-50) the overhead channel (i.e. auxiliary channel) is provided for carrying control information (i.e. signaling packets) used to establish and maintain the downlink and uplink communication paths. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Numminen in view of Walding do not explicitly teach a test settings comprise indications for configuring the reverse traffic channel, one or more auxiliary channels, or a combination thereof and indications of loop back packet transmission procedures to be performed during testing.

Dipperstein in the same field of endeavor teaches a test settings comprise indications for configuring the reverse traffic channel, one or more auxiliary channels, or a combination thereof and indications of loop back packet transmission procedures to be performed during testing (column 3 lines 11-17, claims 6, 13 and 14, In accordance with the eoc-based message exchange sequence, a user or craftsperson operating a sourcing test set (as an LT device at the central office) activates a MENU key on the test set keypad, which causes the test set's LCD display panel to display a list of options (i.e. test settings indications) available to the user, one of which is a bit error test (BERT). in response to a user invoking an input/output element of test set associated with a bit error test, conducting a command-response message exchange over auxiliary ISDN channel, through which device clears loopbacks, and then loops back one or more ISDN bearer channels (i.e. reverse traffic channel), and supervisory control

processor is operative, in response to a user invoking an input/output element of test set associated with a bit error test, to conduct a command-response message exchange over auxiliary ISDN channel, through which device clears loopbacks, and then loops back one or more ISDN bearer channels and, in response to far end device looping back one or more bearer channels, conducting a bit error rate test over looped back one or more bearer channels, and providing an indication of a result of bit error rate test supervisory control processor is operative, in response to a user invoking an input/output element of test set associated with a bit error test, to provide a list of prescribed test parameter options for entry by the user and, in response to said user entering test parameter options, to transmit a first command message over auxiliary ISDN channel instructing device to clear loopbacks and, in response to device clearing loopbacks, to transmit a second command message over auxiliary ISDN channel instructing device to loop back said one or more ISDN bearer channels).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Walding's system/method by incorporating the steps of a test settings comprise indications for configuring the reverse traffic channel, one or more auxiliary channels, or a combination thereof and indications of loop back packet transmission procedures to be performed during testing as suggested by Dipperstein. The motivation is that by providing indications for configuration of various different channels the test environment becomes robust and flexible and enables a test set and a remote device, exchange digital communication messages over various designated channels that are effective to cause the device to

provide a loopback path over at least one channel to the test set and test a prescribed operational characteristic of the link. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

In regards to claim 2 Numminen teaches each loop back packet includes data descriptive of one or more test packets (column 8 lines 30-80, While the G loop is active the mobile station compares the received bit sequence portions to the locally produced portions and measures e.g. the bit error ratio or frame erasure ratio and compiles statistics of the measurement results in a desired manner. Since the received signal is examined in the G loop prior to channel decoding, the locally produced bit sequence at the mobile station also has to be channel encoded for the comparison to be meaningful. Complete statistics or information elements representing the reception error status in general are sent uplink to the test equipment).

4. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen et al. (US PAT 6687499), hereinafter referred to as Numminen in view of Tiedemann Jr. et al. (US PAT 5802105, hereinafter Tiedemann) and Gourdin et al (US PAT 5913162, hereinafter Gourdin).

In regards to claim 30 Numminen teaches sending a first data channel transmission via a first channel wherein first data transmission comprises test packets of known test data via first channel (column 1 lines 36-37 and column 8 lines 6-12, a

mobile station receives a downlink frame from the SS, i.e. SS sends a first data channel transmission. In an alternative embodiment the information bits in the downlink frames may also include non-random bit combinations which will be particularly examined for reception errors. Naturally the mobile station tested must know about the use of such bit combinations just as it knows about the use of the pseudorandom bit sequences); receiving a second data transmission via a second channel, wherein the second data transmission includes parameter values descriptive of the test packets in first data transmission excludes known test data (column 10 lines 27-34, the mobile station compares the received signal to a corresponding locally generated signal and stores statistical information about detected errors in the same manner as described above in connection with the test arrangement proper. At certain intervals the mobile station sends according to step 604 extracts from the stored statistical data to the base station); and determining a packet error rate based on information included in the second data transmission (column 1 lines 41-43, The SS examines whether the transmission or the operation of the mobile station caused errors in the frame). Numminen teaches packet comprising a record for each test packet correctly received (column 10 lines 42-45, Likewise it can be specified that mobile stations send the statistical data uplink as part of messages).

Numminen does not explicitly teach updating a plurality of variables based on the parameter values included in the data transmission.

Tiedemann in the same field of endeavor teaches updating a plurality of variables based on the parameter values included in the data transmission (column 14 lines 40-57).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's system/method by incorporating the steps of updating a plurality of variables based on the parameter values included in the data transmission as suggested by Tiedemann. The motivation is that by updating various variables related to communication link status, a node keeps an up-to-date information of the current condition of the links; thus enabling it to modify, most efficiently and reliably, link parameters to enable seamless communication.

Numminen and Tiedemann do not explicitly teach transmitted parameter values are configured to be used to update a plurality of variables employable in testing the one or more channels.

Gourdin in the same field of endeavor teaches transmitted parameter values are configured to be used to update a plurality of variables employable in testing the one or more channels (column 3 lines 18-33 and column 8 lines 58-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedemann's system/method by incorporating the steps of transmitted parameter values being configured to be used to update a plurality of variables employable in testing the one or more channels as suggested by Gourdin. The motivation is that by receiving test instruction and parameters sent by testing initiator enables a device to successfully and reliability

implement testing sequences as intended by the testing initiaor; thus enabling efficient supervised testing method. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

5. Claims 32-33 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen in view of Walding and Dipperstein.

In regards to claims 32 and 33 Numminen teaches a method for testing the forward link for specific configuration of one or more auxiliary channels (column 11 lines 4-6, traffic and control channels) in wireless data communication system, comprising: receiving a first message having included therein test settings selected *from among a plurality of possible test settings* (column 7 lines 18-20 and column 11 lines 4-6, test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel (i.e. data, traffic or control channel). Applicability of the invention to all mobile communication systems in which a mobile station can operate on data, traffic and control channels (i.e. plurality of possible test settings are related to testing data, traffic or control channel)) for one or more auxiliary channels (column 6 lines 54-56, column 6 lines 66-67 and column 7 lines 1-8, (after selecting data, traffic or control channel) the test equipment sends an immediate assignment 503 which may include various instructions (i.e. record) for the mobile station. Particularly the immediate assignment 503 contains so-called test octets (i.e. record) in which the first two bits indicate the contents of the test of the rest octet. By

the priority date of this patent application values 11 and 10 of the values of the first two bits of the rest octet have been reserved but values 01 and 00 are unused. In accordance with a preferred embodiment of the invention at least one of these values can be reserved to indicate that in response to the immediate assignment 503 the mobile station to be tested has to set itself in a special test mode); configuring each auxiliary channel based on test settings applicable to the auxiliary channel (column 7 lines 46-50, At first the test equipment sends a comparison and statistical operation start command associated with the data channel, which command can be called CLOSE_Multi-slot_loop_CMD. The close command may include an identifier on the basis of which the mobile station identifies the G loop. Numminen further teaches (column 11 lines 4-6) mobile station can perform testing on traffic and control channels (i.e. auxiliary channel) as well); and transmitting each configured auxiliary channel on reverse link in accordance with the applicable test settings (column 2 lines 24-31, The method according to the invention is characterized in that it is comprised of steps wherein a test signal is received in the downlink direction, the test signal received is compared with a known form of the test signal, information produced by the comparison about errors detected in the received test signal is stored, and a signal representing the information stored is sent uplink) to test the configured auxiliary channel (column 7 lines 18-20 and column 11 lines 4-6, test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel. Applicability of the invention to all mobile communication systems in which a mobile station can operate on data, traffic and control channels (i.e. overhead or auxiliary channels)). Numminen

teaches in column 1 lines 35-40, Tests usually employ a technique in which a mobile station receives a downlink frame from the SS and sends back to the SS a corresponding uplink frame which contains the equivalent number of bits. The mobile station may even recycle to the SS the same individual bits that it received in the downlink direction.

Numminen teaches auxiliary channel (column 11 lines 4-6, traffic and control channels), but does not explicitly teach auxiliary channel carry signaling.

Walding in the same field of endeavor teaches the overhead channel (i.e. auxiliary channel) is provided for carrying control information (i.e. signaling packets) used to establish and maintain the downlink and uplink communication paths (column 1 lines 48-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's system/method by incorporating the steps of signaling data being sent via auxiliary channel as suggested by Walding. The motivation is that (as suggested by Walding, column 1 lines 48-50) the overhead channel (i.e. auxiliary channel) is provided for carrying control information (i.e. signaling packets) used to establish and maintain the downlink and uplink communication paths.

Numminen and Walding does not explicitly teach test settings selected comprise indications for configuring each auxiliary channel and indications of procedures to be performed by each auxiliary channel during testing.

Dipperstein in the same field of endeavor teaches test settings selected comprise indications for configuring each auxiliary channel and indications of procedures to be

performed by each auxiliary channel during testing (column 3 lines 11-17, claims 6, 13 and 14, In accordance with the eoc-based message exchange sequence, a user or craftsperson operating a sourcing test set (as an LT device at the central office) activates a MENU key on the test set keypad, which causes the test set's LCD display panel to display a list of options (i.e. test settings indications) available to the user, one of which is a bit error test (BERT). in response to a user invoking an input/output element of test set associated with a bit error test, conducting a command-response message exchange over auxiliary ISDN channel, through which device clears loopbacks, and then loops back one or more ISDN bearer channels (i.e. reverse traffic channel), and supervisory control processor is operative, in response to a user invoking an input/output element of test set associated with a bit error test, to conduct a command-response message exchange over auxiliary ISDN channel, through which device clears loopbacks, and then loops back one or more ISDN bearer channels and, in response to far end device looping back one or more bearer channels, conducting a bit error rate test over looped back one or more bearer channels, and providing an indication of a result of bit error rate test supervisory control processor is operative, in response to a user invoking an input/output element of test set associated with a bit error test, to provide a list of prescribed test parameter options for entry by the user and, in response to said user entering test parameter options, to transmit a first command message over auxiliary ISDN channel instructing device to clear loopbacks and, in response to device clearing loopbacks, to transmit a second command message over

auxiliary ISDN channel instructing device to loop back said one or more ISDN bearer channels).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Walding's system/method by incorporating the steps of test settings selected comprise indications for configuring each auxiliary channel and indications of procedures to be performed by each auxiliary channel during testing as suggested by Dipperstein. The motivation is that by providing indications for configuration of various different channels the test environment becomes robust and flexible and enables a test set and a remote device, exchange digital communication messages over various designated channels that are effective to cause the device to provide a loopback path over at least one channel to the test set and test a prescribed operational characteristic of the link. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

In regards to claims 35-37 Numminen teaches the first message includes a test setting for a particular bit value to be transmitted on an acknowledgment (ACK) channel (column 6 lines 54-56, column 6 lines 66-67 and column 7 lines 1-8, the test equipment sends an immediate assignment 503 which may include various instructions for the mobile station. Particularly the immediate assignment 503 contains so-called rest octets in which the first two bits indicate the contents of the rest of the rest octet. By the priority date of this patent application values 11 and 10 of the values of the first two bits

of the rest octet have been reserved but values 01 and 00 are unused. In accordance with a preferred embodiment of the invention at least one of these values can be reserved to indicate that in response to the immediate assignment 503 the mobile station to be tested has to set itself in a special test mode) or the first message includes a test setting (column 6 lines 54-56, column 6 lines 66-67 and column 7 lines 1-8, the test equipment sends an immediate assignment 503 which may include various instructions for the mobile station. Particularly the immediate assignment 503 contains so-called rest octets in which the first two bits indicate the contents of the rest of the rest octet. By the priority date of this patent application values 11 and 10 of the values of the first two bits of the rest octet have been reserved but values 01 and 00 are unused. In accordance with a preferred embodiment of the invention at least one of these values can be reserved to indicate that in response to the immediate assignment 503 the mobile station to be tested has to set itself in a special test mode) for a particular value to be transmitted on a data rate control (DRC) channel or the first message includes a test setting (column 6 lines 54-56, column 6 lines 66-67 and column 7 lines 1-8, the test equipment sends an immediate assignment 503 which may include various instructions for the mobile station. Particularly the immediate assignment 503 contains so-called rest octets in which the first two bits indicate the contents of the rest of the rest octet. By the priority date of this patent application values 11 and 10 of the values of the first two bits of the rest octet have been reserved but values 01 and 00 are unused. In accordance with a preferred embodiment of the invention at least one of these values can be reserved to indicate that in response to the immediate assignment 503 the

mobile station to be tested has to set itself in a special test mode) for a particular cover to be used for a data rate control (DRC) channel (column 6 lines 20-61).

In regards to claim 38 Numminen teaches the first message includes a test setting indicative of maintenance of a test mode in event of a connection closure or a lost connection (column 7 lines 18-20, So test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel. The mobile station is kept in the test mode by Layer 3 signaling).

6. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen, Walding and Dipperstein as applied to claim 32 above and further in view of Gopalakrishnan et al. (US PAT 7110466, hereinafter Gopalakrishnan).

In regards to claim 34 Numminen teaches auxiliary channels being used for signaling (column 11 lines 4-6, traffic and control channels and column 6 lines 54-56, the test equipment sends an immediate assignment 503 which may include various instructions for the mobile station).

Numminen, Walding and Dipperstein do not explicitly teach auxiliary channels comprise at least one of an acknowledgment (ACK) channel and a data rate control (DRC) channel

Gopalakrishnan in the same field of endeavor teaches control channel (auxiliary channel) being DRC channel (column 1 lines 42-43).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen, Walding and Dipperstein's system/method by

incorporating the steps of control channel being DRC channel as suggested by Gopalakrishnan. The motivation is that (as suggested by Gopalakrishnan, column 1 lines 42-48) the pilot/DRC channel is transmitted by the mobile to provide the base station with a pilot signal that the base station uses to reliably demodulate other transmissions from the mobile to the base station and further the pilot/DRC is also used to provide the base station with data rate request information from the mobile to efficiently control transmission rate. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

7. Claims 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen in view of Tiedemann.

In regards to claim 59 Numminen teaches sending a first message having included therein test settings (column 7 lines 46-47 and column 7 lines 59-61 and column 9 lines 10-11, at first the test equipment sends a comparison and statistical operation start command associated with the data channel. The mobile station activates the test loop in a certain time after it has sent the acknowledge) selected for the reverse traffic channel (column 7 line 42 and column 8 line 67, transmission channel tested is a HSCSD-type data channel); receiving a plurality of test packets (column 8 lines 4-7, once the G loop has been activated the test equipment can start sending test data) on the traffic channel (column 8 lines 4-6, Once the G loop has been activated the test

equipment can start sending test data, i.e. periods of a pseudorandom bit sequence packed in downlink frames) and determining a packet error rate based on information included in plurality of test packets (column 1 lines 41-43, The SS examines whether the transmission or the operation of the mobile station caused errors in the frame).

Numminen does not explicitly teach receiving a plurality of test packets at a plurality of rates, the plurality of test packets comprising information for plurality of rates being tested and updating a plurality of variables maintained for a plurality of rates based on the rates of the received test packets. Numminen does not explicitly teach determining a packet error based on the information included in plurality of test packets for the plurality of rates.

Tiedemann in the same field of endeavor teaches updating a plurality of variables maintained for the plurality of rates based on the rates of the received test packets (column 14 lines 40-57). Tiedemann in the same field of endeavor teaches receiving a plurality of test packets at a plurality of rates (abstract, Each data packet is assigned one of a multiplicity of data rates in accordance with a first pseudorandom process, and is then transmitted at the data rate assigned thereto), the plurality of test packets comprising information for plurality of rates being tested (column 9 lines 30-33 and TABLE II, Referring now to TABLE II, there are listed the number of bits included within the sequences comprising a set of exemplary data packets transmitted at various data rates). Tiedemann in the same field of endeavor teaches determining a packet error based on the information included in plurality of test packets for the plurality of rates (column 10 lines 36-44, Subsequent to identification of the data rate associated with a

particular received frame, the test data replication circuit 50 supplies a locally-generated packet of test data of the appropriate type to the digital comparator 49. Specifically, a frame category indicative of either a Rate 1, Rate 1/2, Rate 1/4, Rate 1/8, Blank, Rate 1 with Bit Error or an Insufficient Frame Quality is provided by the circuit 50 to comparator 49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's system/method by incorporating the steps of receiving a plurality of test packets at a plurality of rates, the plurality of test packets comprising information for plurality of rates being tested and updating a plurality of variables maintained for the plurality of rates based on the rates of the received test packets and determining a packet error based on the information included in plurality of test packets for the plurality of rates as suggested by Tiedemann. The motivation is that by updating various variables related to communication link status, a node keeps an up-to-date information of the current condition of the links; thus enabling it to modify, most efficiently and reliably, link parameters to enable seamless communication. Further motivation is that by testing communication link at various data rates a node can get an accurate picture of the current condition of the link; thus enabling it to modify, most efficiently and reliably, link parameters related to rates to enable seamless communication.

In regards to claim 60 Numminen teaches for each received test packet, updating a first variable based on a sequence number of the test packet (column 8 lines 30-80 and column 8 lines 30-80).

8. Claims 6-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen in view of Tiedemann.

In regards to claim 6, Numminen teaches receiving a first data transmission comprising test packets of known test data via a first channel (column 1 lines 35-39 and column 8 lines 6-10, a mobile station receives a downlink frame from the SS. In an alternative embodiment the information bits in the downlink frames may also include non-random bit combinations which will be particularly examined for reception errors. Naturally the mobile station tested must know about the use of such bit combinations); identifying parameter values descriptive of the test packets in the first data transmission (column 1 lines 35-39, a mobile station receives a downlink frame from the SS and sends back to the SS a corresponding uplink frame which contains the equivalent number of bits i.e. identifying parameter values. The mobile station may even recycle to the SS the same individual bits i.e. identifying parameter values, that it received in the downlink direction); forming a second data transmission with the identified parameter values; and transmitting the second data transmission via a second channel (column 1 lines 37-39, a mobile station receives a downlink frame from the SS and sends back to the SS a corresponding uplink frame which contains the equivalent number of bits i.e. identified parameter values. The mobile station may even recycle to the SS the same individual bits i.e. identifying parameter values, that it received in the downlink direction).

Numminen does not explicitly teach the parameter values of test packets excluding known test data comprise at least one of a serving sector from which the test packet was received, a sequence number of the test packet, and length of the test packet.

Tiedemann in the same field of endeavor teaches each packet of test data provided by the test generation circuit 33 comprises a pseudorandom bit sequence (i.e. sequence number) of predetermined length (column 6 lines 13-15, and wherein length of the pseudorandom bit sequence is not part of the known test data).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's system/method by incorporating the steps of test packets having sequence number as suggested by Tiedemann. The motivation is that having sequence number within a packet enables a system to efficiently and reliably identify packets for further processing and error checking.

In regards to claims 7, 8 and 10, Numminen teaches the first channel is a forward traffic (downlink) channel and the second channel is a reverse traffic channel (uplink) (column 2 lines 25-31, test signal is received in the downlink direction, the test signal received is compared with a known form of the test signal, information produced by the comparison about errors detected in the received test signal is stored, and a signal representing the information stored is sent uplink); the second data transmission comprises a plurality of loop back packets (column 2 lines 25-31, a signal representing the information stored is sent uplink), and wherein the loop back packets include the parameter values descriptive of the test packets (column 8

lines 37-40, Complete statistics or information elements representing the reception error status in general are sent uplink to the test equipment).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen et al. (US PAT 6687499), hereinafter referred to as Numminen in view of Walding (US PAT 6031845) and Funk et al. (US PAT 6766164), hereinafter referred to as Funk and Dipperstein (US PAT 6185191).

In regards to claim 5 Numminen teaches receiving a first message having included therein test settings selected *among a plurality of possible test settings* (column 7 lines 18-20 and column 11 lines 4-6, test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel. Applicability of the invention to all mobile communication systems in which a mobile station can operate on data, traffic and control channels (i.e. plurality of possible test settings)) for one or more channels (column 7 lines 18-20, test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel) comprising a reverse traffic channel (column 7 line 42 and column 8 line 67, transmission channel tested is a HSCSD-type data channel), one or more auxiliary channels, (column 11 lines 4-6, traffic and control channels) or a combination thereof (column 11 lines 4-6, The names and specifications associated with particular systems or hardware are given by way of example only and applicability of the invention extends to all mobile communication systems in which a mobile station can operate on data, traffic and control channels i.e. a combination thereof); configuring the

one or more channels based on the selected test settings in the first message (column 7 lines 46-47 and . column 7 lines 59-61 and column 9 lines 10-11, at first the test equipment sends a comparison and statistical operation start command associated with the data channel. The mobile station activates the test loop in a certain time after it has sent the acknowledge); receiving test packets via a forward traffic channel (column 8 lines 4-7, once the G loop has been activated the test equipment can start sending test data); transmitting loop back packets via the reverse traffic channel (column 8 lines 37-40, Complete statistics or information elements representing the reception error status in general (i.e. loop back packets) are sent uplink to the test equipment) if indicated by the selected test settings (column 7 lines 49-51, the close command may include an identifier on the basis of which the mobile station identifies the G loop) wherein the loop back packets comprising data for the received test packets (column 8 lines 37-40, Complete statistics or information elements representing the reception error status in general (i.e. loop back packets containing complete statistics or information elements representing the reception error status) are sent uplink to the test equipment), and transmitting data via one or more auxiliary channels if indicated by the selected test settings (column 11 lines 4-6, applicability of the invention to all mobile communication systems in which a mobile station can operate on data, traffic and control channels (i.e. auxiliary channels)) *to test the one or more auxiliary channels* (column 7 lines 18-20 and column 11 lines 4-6, test mode means that the mobile station to be tested is instructed to maintain a connection on a certain transmission channel. Applicability of the invention to all mobile communication systems in which a mobile station can operate on data,

traffic and control channels (i.e. overhead or auxiliary channels)). In regards to claim 5, Numminen further teaches a memory (column 7 line 27, memory media) communicatively coupled to a digital signal processing device (DSPD) (column 7 line 26, a microprocessor) capable of interpreting digital information.

Numminen does not explicitly teach signaling data is sent via auxiliary channel.

Walding in the same field of endeavor teaches the overhead channel (i.e. auxiliary channel) is provided for carrying control information (i.e. signaling packets) used to establish and maintain the downlink and uplink communication paths (column 1 lines 48-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's system/method by incorporating the steps of signaling data being sent via auxiliary channel as suggested by Walding. The motivation is that (as suggested by Walding, column 1 lines 48-50) the overhead channel (i.e. auxiliary channel) is provided for carrying control information (i.e. signaling packets) used to establish and maintain the downlink and uplink communication paths.

Numminen and Walding do not explicitly teach test packet is formed for each particular time interval.

Funk in the same field of endeavor teaches test packets being formed for particular time interval (Column 3 lines 61-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Walding's method by incorporating one loop back packet being formed for each particular time interval as taught by Funk. The

motivation is that generating and sending test packets at regular interval helps to diagnose a communication system very efficiently and effectively.

Numminen, Walding and Funk do not explicitly teach a test settings comprise indications for configuring the reverse traffic channel, one or more auxiliary channels, or a combination thereof and indications of loop back packet transmission procedures to be performed during testing.

Dipperstein in the same field of endeavor teaches a test settings comprise indications for configuring the reverse traffic channel, one or more auxiliary channels, or a combination thereof and indications of loop back packet transmission procedures to be performed during testing (column 3 lines 11-17, claims 6, 13 and 14, In accordance with the eoc-based message exchange sequence, a user or craftsperson operating a sourcing test set (as an LT device at the central office) activates a MENU key on the test set keypad, which causes the test set's LCD display panel to display a list of options (i.e. test settings indications) available to the user, one of which is a bit error test (BERT). in response to a user invoking an input/output element of test set associated with a bit error test, conducting a command-response message exchange over auxiliary ISDN channel, through which device clears loopbacks, and then loops back one or more ISDN bearer channels (i.e. reverse traffic channel), and supervisory control processor is operative, in response to a user invoking an input/output element of test set associated with a bit error test, to conduct a command-response message exchange over auxiliary ISDN channel, through which device clears loopbacks, and then loops back one or more ISDN bearer channels and, in response to far end device looping

back one or more bearer channels, conducting a bit error rate test over looped back one or more bearer channels, and providing an indication of a result of bit error rate test supervisory control processor is operative, in response to a user invoking an input/output element of test set associated with a bit error test, to provide a list of prescribed test parameter options for entry by the user and, in response to said user entering test parameter options, to transmit a first command message over auxiliary ISDN channel instructing device to clear loopbacks and, in response to device clearing loopbacks, to transmit a second command message over auxiliary ISDN channel instructing device to loop back said one or more ISDN bearer channels).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen, Walding and Funk's system/method by incorporating the steps of a test settings comprise indications for configuring the reverse traffic channel, one or more auxiliary channels, or a combination thereof and indications of loop back packet transmission procedures to be performed during testing as suggested by Dipperstein. The motivation is that by providing indications for configuration of various different channels the test environment becomes robust and flexible and enables a test set and a remote device, exchange digital communication messages over various designated channels that are effective to cause the device to provide a loopback path over at least one channel to the test set and test a prescribed operational characteristic of the link. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design

incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen and Tiedemann as applied to claim 6 above and further in view of Funk.

In regards to claim 9, Numminen and Tiedemann teach sending loopback packet as described in the rejections of claim 6 above.

Numminen and Tiedemann do not explicitly teach one loop back packet is formed for each particular time interval.

Funk in the same field of endeavor teaches (Column 3 lines 61-67) test packets being formed for particular time interval.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedemann's method by incorporating one loop back packet being formed for each particular time interval as taught by Funk. The motivation is that generating and sending test packets at regular interval helps to diagnose a communication system very efficiently and effectively.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen and Tiedemann as applied to claim 6 above and further in view of Buchholz et al. (US PAT 5555266), hereinafter referred to as Buchholz.

In regards to claim 24, Numminen and Tiedemann teach loopback packets as described in the rejections of claim 6 above.

Numminen and Tiedemann do not explicitly teach each packet on the second data transmission includes a parameter value indicative of omission of one or more packets received on the first data transmission.

Buchholz in the same field of endeavor teaches in response to the receipt of a data packet (310) from a remote unit (112), the communications controller (110) identifies missing data within the data packet transmission, determines whether communication resources are available to support retransmission of the missing data, and if so, transmits a response to the requesting remote unit identifying the missing data.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedemann's system by incorporating the method of notifying sender about missing data as taught by Buchholz. The motivation is that such method will accurately notify the sender about any problems in the communication link, which results in loss of packets; thus making the network more reliable.

12. Claims 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen in view of Tiedemann.

In regards to claim 28, Numminen teaches receiving a first data transmission comprising test packets via a first channel of known test data (column 1 lines 36-37 and column 8 lines 6-12, a mobile station receives a downlink frame from the SS, i.e. SS sends a first data channel transmission. In an alternative embodiment the information

bits in the downlink frames may also include non-random bit combinations which will be particularly examined for reception errors. Naturally the mobile station tested must know about the use of such bit combinations just as it knows about the use of the pseudorandom bit sequences); identifying parameter values descriptive of the test packets in the first data transmission (column 1 lines 35-39, a mobile station receives a downlink frame from the SS and sends back to the SS a corresponding uplink frame which contains the equivalent number of bits i.e. identifying parameter values. The mobile station may even recycle to the SS the same individual bits i.e. identifying parameter values, that it received in the downlink direction); forming a second data transmission with the identified parameter values; and transmitting the second data transmission via a second channel (column 1 lines 37-39, a mobile station receives a downlink frame from the SS and sends back to the SS a corresponding uplink frame which contains the equivalent number of bits i.e. identified parameter values. The mobile station may even recycle to the SS the same individual bits i.e. identifying parameter values, that it received in the downlink direction). In regards to claim 28, Numminen further teaches a memory (column 7 line 27, memory media) communicatively coupled to a digital signal processing device (DSPD) (column 7 line 26, a microprocessor) capable of interpreting digital information

Numminen does not explicitly teach the parameter values of test packets excluding known test data comprise at least one of a serving sector from which the test packet was received, a sequence number of the test packet, and length of the test packet.

Tiedemann in the same field of endeavor teaches each packet of test data excluding known test data provided by the test generation circuit 33 comprises a pseudorandom bit sequence (i.e. sequence number) of predetermined length (column 6 lines 13-15 and wherein length of the pseudorandom bit sequence is not part of the known test data).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's system/method by incorporating the steps of test packets having sequence number as suggested by Tiedemann. The motivation is that having sequence number within a packet enables a system to efficiently and reliably identify packets for further processing and error checking.

13. Claims 29, 39, 61-63, 65, 67 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen, in view of Kobayasi et al. (US PAT 999), hereinafter referred to as Kobayasi and Sjoblom (US PAT PUB 2002/0009053).

In regards to claims 29, 39, 63, 67 and 68 Numminen teaches receiving a plurality of test packets of known test data (column 1 lines 36-37 and column 8 lines 6-12, a mobile station receives a downlink frame from the SS, i.e. SS sends a first data channel transmission. In an alternative embodiment the information bits in the downlink frames may also include non-random bit combinations which will be particularly examined for reception errors. Naturally the mobile station tested must know about the use of such bit combinations just as it knows about the use of the pseudorandom bit sequences) via a forward traffic channel, forming a plurality of loop back packets for the

plurality of received test packets, wherein each loop back packet covers zero or more test packets; and transmitting the loop back packets via reverse traffic channel (column 1 lines 37-39, a mobile station receives a downlink frame from the SS and sends back to the SS a corresponding uplink frame which contains the equivalent number of bits. The mobile station may even recycle to the SS the same individual bits that it received in the downlink direction). In regards to claims 29, 31, 39, 63, 67 and 68 Numminen further teaches data transmission comprises data for determining a packet error rate. The SS examines whether the transfer of data or the operation of the mobile station have caused errors in the frame (column 1 lines 35-39). Numminen teaches the test packets excluding known test data (column 8 lines 37-40, Complete statistics or information elements representing the reception error status in general (i.e. loop back packets) are sent uplink to the test equipment).

Numminen does not explicitly teach identifying a transmission source of each received packet; packet excluding known test data includes the transmission source of each covered test packet and forming a plurality of loop back packets includes the source number of each covered test packet. In regards to claim 62 and 65 Numminen does not explicitly teach a queue for the test packets.

Kobayasi in the same field of endeavor teaches, (column 2 lines 55-67) a test being started by issuing a test connectionless packet transmission request message (test start request) from the OS center 1 to SW station 3. The request message contains an identification information ID indicating terminal SW station 6. SW station 3 generates a test packet with the identification address of terminal SW station 6 set as its

destination address DA and the identification address of its home station (SW station 3) set as its source address SA. The test packet is output to terminal SW station 6. In SW stations 4 and 5, test packets are processed as normal packets and transferred to terminal SW station 6. On receipt of the test packet, terminal SW station 6 outputs the packet with its DA and SA inverted. That is, the packet is returned from terminal SW station 6 to SW station 3, and it is reported to the OS center 1 upon re-arrival of the packet at the source SW station 3. Kobayasi teaches (column 97 lines 45-46) Loopback of a test cell is done in a 156 Mbps cell highway. In regards to claims 62 and 65 Kobayasi teaches buffers (fig 132) for data packets.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's teaching by incorporating the loopback test scheme as taught by Kobayasi. The motivation is that (as suggested by Kobayasi column 317 lines 29-34) the present invention realizes an efficient test within a short time by performing a test cell loopback check, which has been made in a test device, through a test program in the switch. Additionally, transmitting cell data from a test device requires no testing units because the loopback jig can replace the testing units. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Numminen and Kobayasi do not explicitly teach identifying sequence number in test packets and forming test packets including the sequence number.

Sjoblom in the same field of endeavor teaches identifying sequence number in test packets and forming test packets including the sequence number (paragraphs 0023 and 0026).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Kobayasi's teaching by incorporating the steps of identifying sequence number in test packets and forming test packets including the sequence number as suggested by Sjoblom. The motivation is that the sequence number SN is a serial number assigned to a transferred cell for convenience in detecting the cell if it is lost or mistakenly inserted; thus enabling a reliable communication. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

In regards to claim 39 Numminen teaches a memory (column 7 line 27, memory media) communicatively coupled to a digital signal-processing device (DSPD) (column 7 line 26, a microprocessor).

In regards to claims 61 and 67 Numminen teaches a receive data processor (figure 3 element 304), a transmit data processor (figure 3 element 310) and a controller (figure 3 element 307).

14. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen, in view of Kobayasi et al. (US PAT 6333932), hereinafter referred to as Kobayasi, Tiedemann and Sjoblom.

In regards to claim 31 Numminen teaches receiving a plurality of test packets of known test data (column 1 lines 36-37 and column 8 lines 6-12, a mobile station receives a downlink frame from the SS, i.e. SS sends a first data channel transmission. In an alternative embodiment the information bits in the downlink frames may also include non-random bit combinations which will be particularly examined for reception errors. Naturally the mobile station tested must know about the use of such bit combinations just as it knows about the use of the pseudorandom bit sequences) via a forward traffic channel, forming a plurality of loop back packets for the plurality of received test packets, wherein each loop back packet covers zero or more test packets; and transmitting the loop back packets via reverse traffic channel (column 1 lines 37-39, a mobile station receives a downlink frame from the SS and sends back to the SS a corresponding uplink frame which contains the equivalent number of bits. The mobile station may even recycle to the SS the same individual bits that it received in the downlink direction). Numminen further teaches data transmission comprises data for determining a packet error rate. The SS examines whether the transfer of data or the operation of the mobile station have caused errors in the frame (column 1 lines 35-39). Numminen teaches the test packets excluding known test data (column 8 lines 37-40, Complete statistics or information elements representing the reception error status in general (i.e. loop back packets) are sent uplink to the test equipment).

Numminen does not explicitly teach identifying a transmission source of each received packet; packet includes the transmission source of each covered test packet.

Kobayasi in the same field of endeavor teaches, (column 2 lines 55-67) a test being started by issuing a test connectionless packet transmission request message (test start request) from the OS center 1 to SW station 3. The request message contains an identification information ID indicating terminal SW station 6. SW station 3 generates a test packet with the identification address of terminal SW station 6 set as its destination address DA and the identification address of its home station (SW station 3) set as its source address SA. The test packet is output to terminal SW station 6. In SW stations 4 and 5, test packets are processed as normal packets and transferred to terminal SW station 6. On receipt of the test packet, terminal SW station 6 outputs the packet with its DA and SA inverted. That is, the packet is returned from terminal SW station 6 to SW station 3, and it is reported to the OS center 1 upon re-arrival of the packet at the source SW station 3. Kobayasi teaches (column 97 lines 45-46) Loopback of a test cell is done in a 156 Mbps cell highway. In regards to claims 62 and 65 Kobayasi teaches buffers (fig 132) for data packets.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's teaching by incorporating the loopback test scheme as taught by Kobayasi. The motivation is that (as suggested by Kobayasi column 317 lines 29-34) the present invention realizes an efficient test within a short time by performing a test cell loopback check, which has been made in a test device, through a test program in the switch. Additionally, transmitting cell data from a test

device requires no testing units because the loopback jig can replace the testing units. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Numminen and Kobayasi do not explicitly teaches updating a plurality of variables based on the transmission source and sequence number of each packets included in the data transmission.

Tiedemann in the same field of endeavor teaches each packet of test data excluding known test data provided by the test generation circuit 33 comprises a pseudorandom bit sequence (i.e. sequence number) of predetermined length (column 6 lines 13-15 and wherein length of the pseudorandom bit sequence is not part of the known test data). Tiedemann in the same field of endeavor teaches updating a plurality of variables based on the transmission source and sequence number of each packets included in the data transmission (column 14 lines 40-57).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Kobayasi's system/method by incorporating the steps of receiving a plurality of test packets at a plurality of rates and updating a plurality of variables maintained for the plurality of rates based on the rates of the received test packets and parameter values of test packets excluding known test data as suggested by Tiedemann. The motivation is that by updating various variables related to communication link status, a node keeps an up-to-date information of the current condition of the links; thus enabling it to modify, most efficiently and reliably, link

parameters to enable seamless communication. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Numminen, Kobayasi and Tiedemann do not explicitly teach identifying sequence number in test packets and forming test packets including the sequence number.

Sjoblom in the same field of endeavor teaches identifying sequence number in test packets and forming test packets including the sequence number (paragraphs 0023 and 0026).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen, Kobayasi and Tiedemann's teaching by incorporating the steps of identifying sequence number in test packets and forming test packets including the sequence number as suggested by Sjoblom. The motivation is that the sequence number SN is a serial number assigned to a transferred cell for convenience in detecting the cell if it is lost or mistakenly inserted; thus enabling a reliable communication. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

15. Claims 45 and 56, are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen, in view of Tiedemann.

In regards to claim 45 and 56 Numminen teaches receiving a plurality of test packets via a forward traffic channel (column 6 lines 54-56, column 6 lines 66-67 and column 7 lines 1-8, the test equipment sends an immediate assignment 503 which may include various instructions for the mobile station. Particularly the immediate assignment 503 contains so-called test octets in which the first two bits indicate the contents of the test of the rest octet. By the priority date of this patent application values 11 and 10 of the values of the first two bits of the rest octet have been reserved but values 01 and 00 are unused. In accordance with a preferred embodiment of the invention at least one of these values can be reserved to indicate that in response to the immediate assignment 503 the mobile station to be tested has to set itself in a special test mode).

Numminen does not explicitly teach selecting rates for the test packets based on a set of rules for rate selection scheme, and transmitting the test packets at the selected rates on the traffic channel. Numminen does not explicitly teach the plurality of test packets comprising information for a plurality of rates being tested for the traffic channel.

Tiedemann in the same field of endeavor teaches the system allows the test sequence of digital data to be transmitted at one of a set of known data rates, with the receive station being disposed to identify the data rate associated with each test sequence of digital data. In a preferred implementation transmission of the test sequence involves generating a first plurality of data packets, which collectively comprise the test sequence of digital data. Each data packet is assigned one of a

multiplicity of data rates in accordance with a first pseudorandom process, and is then transmitted at the data rate assigned thereto (abstract). Tiedemann in the same field of endeavor teaches plurality of test packets comprising information for a plurality of rates being tested for the traffic channel (column 9 lines 30-33 and TABLE II, Referring now to TABLE II, there are listed the number of bits included within the sequences comprising a set of exemplary data packets transmitted at various data rates).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's teaching by incorporating the steps of selecting rates for the test packets based on a set of rules for rate selection scheme, and transmitting the test packets at the selected rates on the traffic channel. The motivation is that The motivation is that by testing communication link at various data rates a node can get an accurate picture of the current condition of the link; thus enabling it to modify, most efficiently and reliably, link parameters related to rates to enable seamless communication.

16. Claims 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen and Tiedemann as applied to claim 45 above and further in view of Kobayasi.

In regards to claims 50-52 Numminen and Tiedemann teaches a testing system as described in the rejections of claim 45 above.

In regards to claims 50-52 Numminen and Tiedemann do not explicitly teach of having protocol type, packet type, number of records field, time interval, source

address, sequence number in the test packet. In regards to claim 58 Numminen does not explicitly teach a queue for the test packets.

In regards to claims 50 and 51 Kobayasi discloses protocol type, packet type, number of records field, time interval, source address, sequence number in the packets shown in FIGS. 582 through 628. In regards to claim 52 Kobayasi teaches (column 3 lines 5-10) that since the source SW station 3 and the terminal SW station 6 mark the time stamp onto the payload field of the packet, the OS center 1 is informed of the transmission time of packets according to the information. In regards to claim 58, 62 and 65 Kobayasi teaches buffers (fig 132) for data packets.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedemann's teaching by incorporating the loopback test scheme as taught by Kobayasi. The motivation is that (as suggested by Kobayasi column 317 lines 29-34) the present invention realizes an efficient test within a short time by performing a test cell loopback check, which has been made in a test device, through a test program in the switch. Additionally, transmitting cell data from a test device requires no testing units because the loopback jig can replace the testing units. Further motivation (as suggested by Numminen, column 11 lines 5-8) is that the invention can also be modified in many ways without departing from the scope of the invention defined by the claims.

In regards to claim 53, Numminen and Tiedemann do not explicitly teach field indicative of whether any loop back packets were lost due to buffer overflow.

Kobayasi in the same field of endeavor teaches, (column 2 lines 55-67) a test being started by issuing a test connectionless packet transmission request message (test start request) from the OS center 1 to SW station 3. The request message contains an identification information ID indicating terminal SW station 6. SW station 3 generates a test packet with the identification address of terminal SW station 6 set as its destination address DA and the identification address of its home station (SW station 3) set as its source address SA. The test packet is output to terminal SW station 6. In SW stations 4 and 5, test packets are processed as normal packets and transferred to terminal SW station 6. On receipt of the test packet, terminal SW station 6 outputs the packet with its DA and SA inverted. That is, the packet is returned from terminal SW station 6 to SW station 3, and it is reported to the OS center 1 upon re-arrival of the packet at the source SW station 3. Kobayasi further teaches the L2-PDU shown in FIG. 783 is an example of a BOM cell. The 2 bytes preceded by the header field stores a segment type ST, sequence number SN, and message identifier MID (or a multiplex identifier). The sequence number SN is a serial number assigned to a transferred cell for convenience in detecting the cell if it is lost or mistakenly inserted.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedemann's system/method by incorporating the steps of having source id and sequence number in test packets as taught by Kobayasi. The motivation is that having a source and sequence number enables a system to easily and efficiently identify the source of the test packets and number of packets received or lost due to overflow for statistical record keeping.

17. Claims 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen and Tiedmann as applied to claim 45 above, and further in view of Ikeda (US PAT 5636212).

In regards to claims 46 and 47 Numminen and Tiedmann teach a method for testing one or more channels in a wireless data communication system as described in the rejections of claim 45 above.

Numminen and Tiedmann do not explicitly teach message having maximum and minimum rate for rate selection.

Ikeda in the same field of endeavor teaches (column 8 lines 38-39) reservation request being issued with a maximum band-width and a minimum band-width.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedmann's system/method by incorporating the concept of sending maximum band-width and a minimum band-width via message as taught by Ikeda. The motivation is that (as suggested by Ikeda, column 2 lines 5-10) to provide a flexible method of reserving a band-width for a burst capable of flexibly reserving a band-width according to a maximum band-width and a minimum band-width requested for reservation.

In regards to claim 48, Numminen and Tiedmann do not explicitly teach with the steps of the selected rates for the test packets being further limited by a maximum rate specified by a media access control (MAC) protocol

It would have been obvious of one of ordinary skill in the art at the time of invention to modify Numminen and Tiedmann's system/method with the steps of the

selected rates for the test packets being further limited by a maximum rate specified by a media access control (MAC) protocol; as a link defined to have a maximum bandwidth rate cannot operate in a higher bandwidth which may cause overflow of data in buffers and in result cause loss of packets.

18. Claims 57 and 58, are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen, in view of Tiedemann, Kobayasi, Ikeda and and Sjoblom (US PAT PUB 2002/0009053).

In regards to claim 57 and 58 Numminen teaches receiving a plurality of test packets via a forward traffic channel (column 6 lines 54-56, column 6 lines 66-67 and column 7 lines 1-8, the test equipment sends an immediate assignment 503 which may include various instructions for the mobile station. Particularly the immediate assignment 503 contains so-called test octets in which the first two bits indicate the contents of the test of the rest octet. By the priority date of this patent application values 11 and 10 of the values of the first two bits of the rest octet have been reserved but values 01 and 00 are unused. In accordance with a preferred embodiment of the invention at least one of these values can be reserved to indicate that in response to the immediate assignment 503 the mobile station to be tested has to set itself in a special test mode).

Numminen does not explicitly teach selecting rates for the test packets based on a set of rules for rate selection scheme, and transmitting the test packets at the selected rates on the traffic channel.

Tiedemann in the same field of endeavor teaches the system allows the test sequence of digital data to be transmitted at one of a set of known data rates, with the receive station being disposed to identify the data rate associated with each test sequence of digital data. In a preferred implementation transmission of the test sequence involves generating a first plurality of data packets, which collectively comprise the test sequence of digital data. Each data packet is assigned one of a multiplicity of data rates in accordance with a first pseudorandom process, and is then transmitted at the data rate assigned thereto (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's teaching by incorporating the steps of selecting rates for the test packets based on a set of rules for rate selection scheme, and transmitting the test packets at the selected rates on the traffic channel. The motivation is that The motivation is that by testing communication link at various data rates a node can get an accurate picture of the current condition of the link; thus enabling it to modify, most efficiently and reliably, link parameters related to rates to enable seamless communication.

Numminen and Tiedemann do not explicitly teach identifying a transmission source of each received test packet; wherein packet includes the transmission source of each covered test packet. Numminen Tiedemann do not explicitly teach selecting rates for the test packets based on a rate selection scheme. In regards to claim 58 Numminen does not explicitly teach a queue for the test packets.

Kobayasi in the same field of endeavor teaches, (column 2 lines 55-67) a test being started by issuing a test connectionless packet transmission request message (test start request) from the OS center 1 to SW station 3. The request message contains an identification information ID indicating terminal SW station 6. SW station 3 generates a test packet with the identification address of terminal SW station 6 set as its destination address DA and the identification address of its home station (SW station 3) set as its source address SA. The test packet is output to terminal SW station 6. In SW stations 4 and 5, test packets are processed as normal packets and transferred to terminal SW station 6. On receipt of the test packet, terminal SW station 6 outputs the packet with its DA and SA inverted. That is, the packet is returned from terminal SW station 6 to SW station 3, and it is reported to the OS center 1 upon re-arrival of the packet at the source SW station 3. Kobayasi teaches (column 97 lines 45-46) Loopback of a test cell is done in a 156 Mbps cell highway. Kobayasi discloses protocol type, packet type, number of records field, time interval, source address, sequence number in the packets shown in FIGS. 582 through 628. Kobayasi teaches (column 3 lines 5-10) that since the source SW station 3 and the terminal SW station 6 mark the time stamp onto the payload field of the packet, the OS center 1 is informed of the transmission time of packets according to the information.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's teaching by incorporating the loopback test scheme as taught by Kobayasi. The motivation is that (as suggested by Kobayasi column 317 lines 29-34) the present invention realizes an efficient test within a short

time by performing a test cell loopback check, which has been made in a test device, through a test program in the switch. Additionally, transmitting cell data from a test device requires no testing units because the loopback can replace the testing units.

In regards to claim 57 Numminen, Tiedemann and Kobayasi do not explicitly teach message having maximum and minimum rate for rate selection.

Ikeda in the same field of endeavor teaches (column 8 lines 38-39) reservation request being issued with a maximum band-width and a minimum band-width.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen, Tiedemann and Kobayasi's system/method by incorporating the concept of sending maximum band-width and a minimum band-width via message as taught by Ikeda. The motivation is that (as suggested by Ikeda, column 2 lines 5-10) to provide a flexible method of reserving a band-width for a burst capable of flexibly reserving a band-width according to a maximum band-width and a minimum band-width requested for reservation.

Numminen, Tiedemann, Kobayasi and Ikeda do not explicitly teach identifying sequence number in test packets and forming test packets including the sequence number.

Sjoblom in the same field of endeavor teaches identifying sequence number in test packets and forming test packets including the sequence number (paragraphs 0023 and 0026).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen, Tiedemann, Kobayasi and Ikeda's teaching

by incorporating the steps of identifying sequence number in test packets and forming test packets including the sequence number as suggested by Sjoblom. The motivation is that the sequence number SN is a serial number assigned to a transferred cell for convenience in detecting the cell if it is lost or mistakenly inserted; thus enabling a reliable communication. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

19. Claims 11-13, 15-20, 22, 23, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen and Tiedemann as applied to claim 6 above and further in view of Kobayasi.

In regards to claims 11, 12, 13, 15-20, 22, 23, 25, 26 and 27 Numminen and Tiedemann teach a method for testing one or more channels in a wireless data communication system, comprising: receiving a plurality of test packets via a forward traffic channel as described in the rejections of claim 6 above.

Numminen and Tiedemann do not explicitly teach of having protocol type, packet type, number of records field, time interval, source address, sequence number in the test packet.

Kobayasi in the same field of endeavor teaches protocol type, packet type, number of records field, time interval, source address, sequence number in the packets shown in FIGS. 582 through 628. In regards to claims 13 and 20 Kobayasi teaches

(column 3 lines 5-10) that since the source SW station 3 and the terminal SW station 6 mark the time stamp onto the payload field of the packet, the OS center 1 is informed of the transmission time of packets according to the information.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedemann's system/method by incorporating the loopback test scheme as taught by Kobayasi. The motivation is that (as suggested by Kobayasi column 317 lines 29-34) the present invention realizes an efficient test within a short time by performing a test cell loopback check, which has been made in a test device, through a test program in the switch. Additionally, transmitting cell data from a test device requires no testing units because the loopback jig can replace the testing units. Further motivation (as suggested by Numminen, column 11 lines 5-8) is that the invention can also be modified in many ways without departing from the scope of the invention defined by the claims.

20. Claims 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen in view of Oommen et al. (US PAT 6799203) and Tiedemann.

In regards to claims 40-44 Numminen teaches receiving a plurality of test packets via a forward traffic channel as described in the rejections of claim 1 above. In regards to claims 40, 41, 42 and 43 Numminen teaches a method of collecting data for a first parameter while in idle state and not exchanging data via the link (column 10 lines 1-8, In addition to the testing described above the invention is applicable when a mobile station or a terminal of a cellular radio system in general is in normal use, i.e.

moving with its user within the area of the cellular radio system. Then it is for most of the time in the so-called idle mode (i.e. idle state) in which it receives from base stations certain downlink messages and sends occasionally location update messages (i.e. collecting data for a first parameter “location area”) uplink. The cellular radio system knows at all times the location of every idling mobile station (i.e. first statistics being transmitted data of “location area” for every idling mobile station) with the accuracy of a so-called location area (LA) at least). Numminen teaches collecting a second statistic for a second parameter different from the first parameter while in connected state and exchanging data via the link (column 7 lines 46-47 and column 7 lines 59-61, column 9 lines 10-11 and column 8 lines 29-39, while the G loop is active the mobile station compares the received bit sequence portions to the locally produced portions and measures e.g. the bit error ratio or frame erasure ratio and compiles statistics of the measurement results in a desired manner. Complete statistics or information elements representing the reception error status in general are sent uplink to the test equipment. At first the test equipment sends a comparison and statistical operation start command associated with the data channel. The mobile station activates the test loop in a certain time after it has sent the acknowledge). Numminen teaches receiving a first message requesting the first or second statistic, and sending a second message with the requested first or second statistic (column 8 lines 29-39, while the G loop is active the mobile station compares the received bit sequence portions to the locally produced portions and measures e.g. the bit error ratio or frame erasure ratio and compiles statistics of the measurement results in a desired manner. Complete statistics or

information elements representing the reception error status in general are sent uplink to the test equipment).

In regards to claims 40-43 Numminen does not explicitly teach, collecting statistics during each of the transactions.

Oommen in the same field of endeavor teaches (column 2 lines 46-49) OTAMD involves requesting statistics and performing diagnostic tests in the MS using a command issued from the network for testing purpose.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's teaching by incorporating the statistic gathering during transactions as taught by Oommen. The motivation is that by collecting statistics real-time while testing is being performed enables a reliable and up-to-date statistic collection process to check network reliability. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

In regards to claims 40 and 44, Numminen and Oommen do not explicitly teach collecting the first statistic occurs while performing testing.

Tiedemann in the same field of endeavor teaches collecting the first statistic occurs while performing testing function (column 14 lines 40-57).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Oommen's teaching by incorporating the steps of collecting the first statistic occurs while performing testing as taught by

Oommen. The motivation is that by collecting statistics real-time while testing is being performed enables a reliable and up-to-date statistic collection process to check network reliability. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

In regards to claim 44, Numminen teaches a memory (column 7 line 27, memory media) communicatively coupled to a digital signal processing device (DSPD) (column 7 line 26, a microprocessor).

21. Claims 64 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen, in view of Tiedemann, Kobayasi, ikeda and and Sjoblom (US PAT PUB 2002/0009053).

In regards to claim 64 and 66 Numminen teaches receiving a plurality of test packets via a forward traffic channel (column 6 lines 54-56, column 6 lines 66-67 and column 7 lines 1-8, the test equipment sends an immediate assignment 503 which may include various instructions for the mobile station. Particularly the immediate assignment 503 contains so-called test octets in which the first two bits indicate the contents of the test of the rest octet. By the priority date of this patent application values 11 and 10 of the values of the first two bits of the rest octet have been reserved but values 01 and 00 are unused. In accordance with a preferred embodiment of the invention at least one of these values can be reserved to indicate that in response to the

immediate assignment 503 the mobile station to be tested has to set itself in a special test mode).

Numminen does not explicitly teach selecting rates for the test packets based on a set of rules for rate selection scheme, and transmitting the test packets at the selected rates on the traffic channel.

Tiedemann in the same field of endeavor teaches the system allows the test sequence of digital data to be transmitted at one of a set of known data rates, with the receive station being disposed to identify the data rate associated with each test sequence of digital data. In a preferred implementation transmission of the test sequence involves generating a first plurality of data packets, which collectively comprise the test sequence of digital data. Each data packet is assigned one of a multiplicity of data rates in accordance with a first pseudorandom process, and is then transmitted at the data rate assigned thereto (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen's teaching by incorporating the steps of selecting rates for the test packets based on a set of rules for rate selection scheme, and transmitting the test packets at the selected rates on the traffic channel as suggested by Tiedemann. The motivation is that The motivation is that by testing communication link at various data rates a node can get an accurate picture of the current condition of the link; thus enabling it to modify, most efficiently and reliably, link parameters related to rates to enable seamless communication.

Numminen and Tiedemann do not explicitly teach test packets having transmission source.

Kobayasi in the same field of endeavor teaches, (column 2 lines 55-67) a test being started by issuing a test connectionless packet transmission request message (test start request) from the OS center 1 to SW station 3. The request message contains an identification information ID indicating terminal SW station 6. SW station 3 generates a test packet with the identification address of terminal SW station 6 set as its destination address DA and the identification address of its home station (SW station 3) set as its source address SA. The test packet is output to terminal SW station 6. In SW stations 4 and 5, test packets are processed as normal packets and transferred to terminal SW station 6. On receipt of the test packet, terminal SW station 6 outputs the packet with its DA and SA inverted. That is, the packet is returned from terminal SW station 6 to SW station 3, and it is reported to the OS center 1 upon re-arrival of the packet at the source SW station 3.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedemann's system/method by incorporating the steps of having source id in test packets as taught by Kobayasi. The motivation is that having a source and sequence number enables a system to easily and efficiently identify the source of the test packets and number of packets received for statistical record keeping.

Numminen, Tiedemann and Kobayasi does not explicitly teach message having maximum and minimum rate for rate selection

Ikeda in the same field of endeavor teaches (column 8 lines 38-39) reservation request being issued with a maximum band-width and a minimum band-width.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen, Tiedemann and Kobayasi's system/method by incorporating the concept of sending maximum band-width and a minimum band-width via message as taught by Ikeda. The motivation is that (as suggested by Ikeda, column 2 lines 5-10) to provide a flexible method of reserving a band-width for a burst capable of flexibly reserving a band-width according to a maximum band-width and a minimum band-width requested for reservation.

Numminen, Tiedemann, Kobayasi and Ikeda do not explicitly teach identifying sequence number in test packets and forming test packets including the sequence number.

Sjoblom in the same field of endeavor teaches identifying sequence number in test packets and forming test packets including the sequence number (paragraphs 0023 and 0026).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen, Tiedemann, Kobayasi and Ikeda's teaching by incorporating the steps of identifying sequence number in test packets and forming test packets including the sequence number as suggested by Sjoblom. The motivation is that the sequence number SN is a serial number assigned to a transferred cell for convenience in detecting the cell if it is lost or mistakenly inserted; thus enabling a reliable communication. Known work in one field of endeavor may prompt variations of it

for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

In regards to claim 64 Numminen teaches a receive data processor (figure 3 element 304), a transmit data processor (figure 3 element 310) and a controller (figure 3 element 307).

22. Claims 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numminen and Tiedemann as applied to claim 6 above and further in view of Kobayasi.

Numminen and Tiedemann teach a method for testing one or more channels in a wireless data communication system, comprising: receiving a plurality of test packets via a forward traffic channel as described in the rejections of claim 6 above.

Numminen and Tiedemann do not explicitly teach field indicative of whether any loop back packets were lost due to buffer overflow and a field indicative of a number of MAC packets received in a Physical Layer packet containing the test packet covered by the record.

Kobayasi in the same field of endeavor teaches, (column 2 lines 55-67) a test being started by issuing a test connectionless packet transmission request message (test start request) from the OS center 1 to SW station 3. The request message contains an identification information ID indicating terminal SW station 6. SW station 3 generates a test packet with the identification address of terminal SW station 6 set as its

destination address DA and the identification address of its home station (SW station 3) set as its source address SA. The test packet is output to terminal SW station 6. In SW stations 4 and 5, test packets are processed as normal packets and transferred to terminal SW station 6. On receipt of the test packet, terminal SW station 6 outputs the packet with its DA and SA inverted. That is, the packet is returned from terminal SW station 6 to SW station 3, and it is reported to the OS center 1 upon re-arrival of the packet at the source SW station 3. Kobayasi further teaches the L2-PDU shown in FIG. 783 is an example of a BOM cell. The 2 bytes preceded by the header field stores a segment type ST, sequence number SN, and message identifier MID (or a multiplex identifier). The sequence number SN is a serial number assigned to a transferred cell for convenience in detecting the cell if it is lost or mistakenly inserted.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Numminen and Tiedemann's system/method by incorporating the steps of having source id and sequence number in test packets as taught by Kobayasi. The motivation is that having a source and sequence number enables a system to easily and efficiently identify the source of the test packets and number of packets received or lost due to overflow for statistical record keeping.

Allowable Subject Matter

23. Claims 54 and 55 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

24. Applicant's arguments see pages 17-41 of the Remarks section, filed 7/21/2008, with respect to the rejections of the claims have been fully considered.

Claims 1 and 2:

In regards to claim 1, Applicant's amendment necessitated a new ground of rejections presented in this office action. As such, any further response to Applicant's argument is moot.

Claim 32:

In regards to claim 32, Applicant's amendment necessitated a new ground of rejections presented in this office action. As such, any further response to Applicant's argument is moot.

Claim 6:

Applicant argues (see page 25 last paragraph) that while Tiedemann encodes and transmits a pseudorandom bit sequence of predetermined length, the predetermined length is not "identified" as a parameter value descriptive of the test packet. However, Examiner respectfully disagrees with the Applicant's assertion. The word "descriptive" is a very broad term, and in view of the broadest reasonable interpretation of the claim language, Numminen and Tiedemann do indeed teach the cited limitation. Specifically, Tiedemann in the same field of endeavor teaches each packet of test data provided by the test generation circuit 33 comprises a pseudorandom bit sequence (i.e. sequence number) of predetermined length (column 6 lines 13-15, and wherein the length of the pseudorandom bit sequence is not part of the

known test data, i.e. is not a field element in the packet). Since each packet comprises a distinct pseudorandom bit sequence of predetermined length, pseudorandom bit sequence is indeed identifiable as a parameter value descriptive of each test packet. Tiedemann in the same field of endeavor further teaches after encoding of the pseudorandom test data and subsequent transmission over a communication channel to a receive station, the received test data is compared (i.e. after identifying) to a replica thereof synchronously generated within the receive station. In accordance with the invention, the integrity of data transmission over the communication channel may then be evaluated on the basis of this comparison between the received and locally-generated versions of the test data.

Applicant argues (see page 26 second paragraph) that the claim is seeking to protect "identifying parameter values descriptive of the test packets in the first data transmission and excluding known test data". However, Examiner respectfully submits that the cited prior art indeed satisfies the limitation of current claimed language, as the length of the pseudorandom bit sequence is not part of the known test data, i.e. is not a field element in the packet. Since, length itself is not being "identified", but the pseudorandom bit sequence is being "identified", "identifying parameter values descriptive of the test packets in the first data transmission and excluding known test data" limitation is met by the cited prior art. As mentioned earlier, since each packet comprises a distinct pseudorandom bit sequence of predetermined length, pseudorandom bit sequence is indeed identifiable as a parameter value descriptive of each test packet.

Claim 28:

Applicant argues (see page 27 paragraph three) that the Tiedemann design does not identify parameter values descriptive of the test packets in a data transmission, where parameter values comprise at least one of a serving sector, a sequence number, and a length as claimed. However, Examiner respectfully disagrees with the Applicant's assertion. As mentioned earlier, the cited limitations are indeed taught by the cited prior arts. Specifically, The word "descriptive" is a very broad term, and in view of the broadest reasonable interpretation of the claim language, Numminen and Tiedemann do indeed teach the cited limitation. Specifically, Tiedemann in the same field of endeavor teaches each packet of test data provided by the test generation circuit 33 comprises a pseudorandom bit sequence (i.e. sequence number) of predetermined length (column 6 lines 13-15, and wherein the length of the pseudorandom bit sequence is not part of the known test data, i.e. is not a field element in the packet). Since each packet comprises a distinct pseudorandom bit sequence of predetermined length, pseudorandom bit sequence is indeed identifiable as a parameter value descriptive of each test packet. Tiedemann in the same field of endeavor further teaches after encoding of the pseudorandom test data and subsequent transmission over a communication channel to a receive station, the received test data is compared (i.e. after identifying, i.e. comparison cannot be done with out identifying first) to a replica thereof synchronously generated within the receive station. In accordance with the invention, the integrity of data transmission over the communication channel may

then be evaluated on the basis of this comparison between the received and locally-generated versions of the test data.

Applicant argues (see page 27 last paragraph) that the claim is seeking to protect "identifying parameter values descriptive of the test packets in the first data transmission and excluding known test data". However, Examiner respectfully submits that the cited prior art indeed satisfies the limitation of current claimed language, as the length of the pseudorandom bit sequence is not part of the known test data, i.e. is not a field element in the packet. Since, length itself is not being “identified”, but the pseudorandom bit sequence is being “identified”, "identifying parameter values descriptive of the test packets in the first data transmission and excluding known test data” limitation is met by the cited prior art. As mentioned earlier, since each packet comprises a distinct pseudorandom bit sequence of predetermined length, pseudorandom bit sequence is indeed identifiable as a parameter value descriptive of each test packet.

Claim 30:

In regards to claim 30, Applicant’s amendment necessitated a new ground of rejections presented in this office action. As such, any further response to Applicant’s argument is moot.

Claims 45 and 56:

Applicant argues (see page 30 paragraph one) that while the Tiedemann listing of rates represents "test bits per frame," it is not information contained in a plurality of test packets. However, Examiner respectfully disagrees with the Applicant's

assertion. The current claim language states, "forming a plurality of test packets …plurality of test packets comprising information for a plurality of rates being tested …". The claim does not state each packet has multiple rates information, rather plurality of packets have multiple rates information. The claim language is broad and does not state, a container (test packets) comprising information for multiple metrics (rates being tested) as stated by Applicant. Container and Metrics are not part of the claim language. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Container and Metrics) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, Examiner points out that Tiedemann in the same field of endeavor teaches the system allows the test sequence of digital data to be transmitted at one of a set of known data rates, with the receive station being disposed to identify the data rate associated with each test sequence (test sequence being information for rate being tested) of digital data. In a preferred implementation transmission of the test sequence involves generating a first plurality of data packets, which collectively comprise the test sequence (test sequence being information for rate being tested) of digital data. Each data packet is assigned one of a multiplicity of data rates in accordance with a first pseudorandom process, and is then transmitted at the data rate assigned thereto (abstract). Tiedemann in the same field of endeavor teaches plurality of test packets comprising information for a plurality of rates being tested for the traffic channel (column

9 lines 30-33 and TABLE II, Referring now to TABLE II, there are listed the number of bits included within the sequences (sequence being information for rate being tested) comprising a set of exemplary data packets transmitted at various data rates). Table II clearly shows rate is function of Test bits per frame. As such, each packet containing number of test bits per frame is, the cited information about its rate being carried by the packet.

Claim 59:

Applicant argues (see page 31 paragraph 3) that Tiedemann does not teach "the plurality of test packets comprising information for a plurality of rates being tested for the reverse traffic channel." However, Examiner respectfully disagrees with the Applicant's assertion. Numminen in combination with Tiedemann do indeed teach the cited limitations. Specifically, Numminen teaches sending a first message having included therein test settings (column 7 lines 46-47 and column 7 lines 59-61 and column 9 lines 10-11, at first the test equipment sends a comparison and statistical operation start command associated with the data channel. The mobile station activates the test loop in a certain time after it has sent the acknowledge) selected for the reverse traffic channel (column 7 line 42 and column 8 line 67, transmission channel tested is a HSCSD-type data channel); receiving a plurality of test packets (column 8 lines 4-7, once the G loop has been activated the test equipment can start sending test data) on the traffic channel (column 8 lines 4-6, Once the G loop has been activated the test equipment can start sending test data, i.e. periods of a pseudorandom bit sequence packed in downlink frames) and determining a packet error rate based on information

included in plurality of test packets (column 1 lines 41-43, The SS examines whether the transmission or the operation of the mobile station caused errors in the frame). Numminen does not explicitly teach receiving a plurality of test packets at a plurality of rates, the plurality of test packets comprising information for plurality of rates being tested and updating a plurality of variables maintained for a plurality of rates based on the rates of the received test packets. Numminen does not explicitly teach determining a packet error based on the information included in plurality of test packets for the plurality of rates. Tiedemann in the same field of endeavor teaches updating a plurality of variables maintained for the plurality of rates based on the rates of the received test packets (column 14 lines 40-57). Tiedemann in the same field of endeavor teaches receiving a plurality of test packets at a plurality of rates (abstract, Each data packet is assigned one of a multiplicity of data rates in accordance with a first pseudorandom process, and is then transmitted at the data rate assigned thereto), the plurality of test packets comprising information for plurality of rates being tested (column 9 lines 30-33 and TABLE II, Referring now to TABLE II, there are listed the number of bits included within the sequences comprising a set of exemplary data packets transmitted at various data rates). Tiedemann in the same field of endeavor teaches determining a packet error based on the information included in plurality of test packets for the plurality of rates (column 10 lines 36-44, Subsequent to identification of the data rate associated with a particular received frame, the test data replication circuit 50 supplies a locally-generated packet of test data of the appropriate type to the digital comparator 49. Specifically, a frame category indicative of either a Rate 1, Rate 1/2, Rate 1/4, Rate 1/8,

Blank, Rate 1 with Bit Error or an Insufficient Frame Quality is provided by the circuit 50 to comparator 49). The current claim language states, “forming a plurality of test packets …plurality of test packets comprising information for a plurality of rates being tested …”. The claim does not state each packet has multiple rates information, rather plurality of packets have multiple rates information. Further, Examiner points out that Tiedemann in the same field of endeavor teaches the system allows the test sequence of digital data to be transmitted at one of a set of known data rates, with the receive station being disposed to identify the data rate associated with each test sequence (test sequence being information for rate being tested) of digital data. In a preferred implementation transmission of the test sequence involves generating a first plurality of data packets, which collectively comprise the test sequence (test sequence being information for rate being tested) of digital data. Each data packet is assigned one of a multiplicity of data rates in accordance with a first pseudorandom process, and is then transmitted at the data rate assigned thereto (abstract). Tiedemann in the same field of endeavor teaches plurality of test packets comprising information for a plurality of rates being tested for the traffic channel (column 9 lines 30-33 and TABLE II, Referring now to TABLE II, there are listed the number of bits included within the sequences (sequence being information for rate being tested) comprising a set of exemplary data packets transmitted at various data rates). Table II clearly shows rate is function of Test bits per frame. As such, each packet containing number of test bits per frame is, the cited information about its rate being carried by the packet.

Applicant argues (see page 32 paragraph 2) that claim limitation states “a record for each test packet correctly received”. However, Examiner is unable to find such limitation in claim 59.

Claim 5:

In regards to claim 5, Applicant’s amendment necessitated a new ground of rejections presented in this office action. As such, any further response to Applicant’s argument is moot.

Claims 29, 39, 61-63, 65, 67 and 68:

A new ground of rejection is presented in this office action. As such, any further response to Applicant’s argument is moot.

Claim 31:

A new ground of rejection is presented in this office action. As such, any further response to Applicant’s argument is moot.

Claims 40 and 44:

A new ground of rejection is presented in this office action. As such, any further response to Applicant’s argument is moot.

Claim 57:

A new ground of rejection is presented in this office action. As such, any further response to Applicant’s argument is moot.

Claims 64 and 66:

A new ground of rejection is presented in this office action. As such, any further response to Applicant’s argument is moot.

Conclusion

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SALMAN AHMED whose telephone number is (571)272-8307. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Salman Ahmed/
Examiner, Art Unit 2619